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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/803,485	03/09/2001	Donald Henry Willis	PU010032	7267

7590

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EXAMINER

SHAPIRO, LEONID

ART UNIT

PAPER NUMBER

2673

DATE MAILED: 11/19/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/803,485

Applicant(s)

WILLIS ET AL.

Examiner

Leonid Shapiro

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 14-29 is/are rejected.
- 7) ☒ Claim(s) 12 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-4, 6, 11, 14, 16, 21-23, 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Gadeyne et al. (US Patent No. 6,359,663 B1) in view of Iwaki (JP Patent No. 08-088770) and Takahashi et al. (US Patent No. 6,181,368 B1) and Levine (US Patent No. 4,499,497).

As to claim 1, Gadeyne et al. teaches a method for reducing sparkle artifact in a liquid crystal imager (See Fig. 1a-1c, items 1-7, in description See Col. 2, Lines 46-51 and Col. 5, Lines 15-25).

Gadeyne et al. does not show step of dividing a video signal for a picture into a higher brightness level signal and lower brightness level signal.

Iwaki teaches dividing a video signal for a picture into a higher luminance (brightness) level signal and lower luminance (brightness) level signal, delaying one of the signals (Drawing 1, items 1-12, in Detailed Description See page 1-3, paragraphs 008-0015).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate Iwaki approach for reducing sparkle artifacts in the Gadeyne et al. method to obtain image with fidelity without causing a pattern (See Purpose in Iwaki reference).

Gadeyne et al. and Iwaki do not show low pass filtering lower brightness level signal.

Takahashi et al. teaches how to remove the noise components for low brightness area using low pass filters (See Fig. 5, 22-23, items 34, 0-B, in description See Col. 7, Lines 40-44).

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It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate Takahashi et al. approach for reducing sparkle artifacts in the Gadeyne et al. and Iwaki method to remove noise components in the signal (See Col. 7, Lines 43-45 in Takashi et al. reference).

Gadeyne et al., Iwaki and Takahashi et al. do not teach combining low pass filtered lower brightness level signal and delay matched higher brightness level signal to generate modified video signal yielding reduced sparkle artifacts in imager.

Levine teaches combining low brightness video signal and delayed signal to provide fully processed video signal (See Fig. 1-2, items 27-29, in description See Col. 3, Lines 44-55).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate Levine approach for reducing sparkle artifacts in the Gadeyne et al. Iwaki, Takahashi et al. apparatus to improve signal-to-noise ratio (See Col. 1, Lines 35-40 in Levine reference).

As to claim 11, Gadeyne et al. teaches a circuit for reducing sparkle artifact in a liquid crystal imager (See Fig. 1a-1c, items 1-7, in description See Col. 2, Lines 46-51 and Col. 5, Lines 15-25).

Gadeyne et al. does not show means of dividing a video signal for a picture into a higher brightness level signal and lower brightness level signal.

Iwaki teaches dividing a video signal for a picture into a higher luminance (brightness) level signal and lower luminance (brightness) level signal, delaying one of the signals (Drawing 1, items 1-12, in Detailed Description See page 1-3, paragraphs 008-0015).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate Iwaki approach for reducing sparkle artifacts in the Gadeyne et al. apparatus to obtain image with fidelity without causing a pattern (See Purpose in Iwaki reference).

Gadeyne et al. and Iwaki do not show means for low pass filtering lower brightness level signal.

Takahashi et al. teaches how to remove the noise components for low brightness area using low pass filters (See Fig. 5, 22-23, items 34, 0-B, in description See Col. 7, Lines 40-44).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate Takahashi et al. approach for reducing sparkle artifacts in the Gadeyne et al. and Iwaki apparatus to remove noise components in the signal (See Col. 7, Lines 43-45 in Takashi et al. reference).

Gadeyne et al., Iwaki and Takahashi et al. do not teach means for combining low pass filtered lower brightness level signal and delay matched higher brightness level signal to generate modified video signal yielding reduced sparkle artifacts in imager.

Levine teaches combining low brightness video signal and delayed signal to provide fully processed video signal (See Fig. 1-2, items 27-29, in description See Col. 3, Lines 44-55).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate Levine approach for reducing sparkle artifacts in the Gadeyne et al. Iwaki, Takahashi et al. apparatus to improve signal-to-noise ratio (See Col. 1, Lines 35-40 in Levine reference).

As to claim 21, Gadeyne et al. teaches a circuit for reducing sparkle artifact in a liquid crystal imager (See Fig. 1a-1c, items 1-7, in description See Col. 2, Lines 46-51 and Col. 5, Lines 15-25).

Gadeyne et al. does not show a decomposes for dividing a video signal for a picture into a higher brightness level signal and lower brightness level signal.

Iwaki teaches dividing a video signal for a picture into a higher luminance (brightness) level signal and lower luminance (brightness) level signal, delaying one of the signals (Drawing 1, items 1-12, in Detailed Description See page 1-3, paragraphs 008-0015).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate Iwaki approach for reducing sparkle artifacts in the Gadeyne et al. apparatus to obtain image with fidelity without causing a pattern (See Purpose in Iwaki reference).

Gadeyne et al. and Iwaki do not show low pass filter for processing lower brightness level signal, low pass filtered lower brightness level signal being delayed

Takahashi et al. teaches how to remove the noise components for low brightness area using low pass filters (See Fig. 5, 22-23, items 34, 0-B, in description See Col. 7, Lines 40-44).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate Takahashi et al. approach for reducing sparkle artifacts in the Gadeyne et al. and Iwaki apparatus to remove noise components in the signal (See Col. 7, Lines 43-45 in Takashi et al. reference).

Gadeyne et al., Iwaki and Takahashi et al. do not teach combining low pass filtered lower brightness level signal and delay matched higher brightness level signal to generate modified video signal yielding reduced sparkle artifacts in imager.

Levine teaches combining low brightness video signal and delayed signal to provide fully processed video signal (See Fig. 1-2, items 27-29, in description See Col. 3, Lines 44-55).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate Levine approach for reducing sparkle artifacts in the Gadeyne et al. Iwaki, Takahashi et al. apparatus to improve signal-to-noise ratio (See Col. 1, Lines 35-40 in Levine reference).

As to claims 2, 14, 23, Iwaki teaches dividing video signal in accordance with a transition between lower and higher gain portions of a gamma table (Drawing 1, items 1-12, in Detailed Description See page 1-3, paragraphs 008-0015).

As to claims 3-4, Iwaki teaches selecting a brightness level threshold, comparing successive input brightness levels of video signal to selected threshold; for each input brightness level greater than threshold in comparing step, assigning to higher brightness level signal a brightness level equal to a difference between greater input brightness level and threshold and assigning to lower brightness level signal a brightness level equal to threshold; and, for each input brightness level less than threshold in comparing step, assigning to higher brightness level signal a brightness level equal to zero and assigning to lower brightness level signal a brightness level equal to input brightness level (Drawing 1, items 1-12, in Detailed Description See page 1-3, paragraphs 008-0015).

As to claims 6, 16, 25, Iwaki teaches step of delaying higher brightness level signal by time delay (See Drawing 1, item 1-3, 12, in Detailed Description See page 1-3, paragraphs 008-0015).

As to claims 22 Iwaki teaches decomposer circuit has a selectable threshold value (See Drawing 1, item 1-3, 12, in Detailed Description See page 1-3, paragraphs 008-0015).

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2. Claims 5, 15, 24 rejected under 35 U.S.C. 103(a) as being unpatentable over Gadeyne et al., Iwaki and Takahashi et al. and Levine as aforementioned in Claim 1 in view of Jang (US Patent No. 5,361,094).

Gadeyne et al., Iwaki and Takahashi et al. and Levine do not teach step of low pass filtering lower brightness level signal in accordance with normalized 1:2:1 Z-transform, lower brightness level signal being thereby subjected to a time delay.

Jang shows how to use normalized Z-transform in CCD color camera with gamma correction (See Fig. 4, items 50, 56, 56a, in description See Col. 3, Lines 46-57). It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate Jang approach for reducing sparkle artifacts in the Gadeyne et al., Iwaki and Takahashi et al. and Levine apparatus to improve signal-to-noise ratio (See Col. 1, Lines 35-40 in Levine).

3. Claim 7-10, 17-20 and 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gadeyne et al., Iwaki, Takahashi et al. and Levine as aforementioned in claims 1, 11, 21 in view Jang (US Patent No. 5,361,094).

Gadeyne et al., Iwaki, Takahashi et al. and Levine do not show applying sparkle reducing steps for luminance signal for picture; delaying chrominance signals for picture and generating a plurality of video drive signals from modified luminance signal and delayed chrominance signals.

Gadeyne et al., Iwaki, Takahashi et al. and Levine teach to decompose signal in high and low brightness signal, low pass filter low brightness signal and delay match high brightness signals and then combine both of them.

Jang teaches to separate signal in two chrominance and luminance signals (See Fig. 3, items 42,44,46, in description SEE Col. 3, Lines 33-43). Luminance is a brightness signal which depends on brightness level will be treated by Gadeyne et al., Iwaki, Takahashi et al. and Levine as discussed above. Chrominance signal being color data do not need processing for the same reasoning as high brightness signal.

It would have been obvious to one of ordinary skill in the art at the time of invention to treat luminance signal with low brightness signal and chrominance signal, and high brightness luminance signal and to incorporate Jang separation approach for reducing sparkle artifacts in the Gadeyne et al., Iwaki, Takahashi et al. and Levine apparatus to improve signal-to-noise ratio (See Col. 1, Lines 35-40 in Levine).

Allowable Subject Matter

4. Claims 12-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

Relative to claims 12-13, the major difference between the teaching of the prior art of record (US patent No. 6,359,663 B1 to Gadeyne et al., US Patent No. 5,181,368 B1 to Takahashi et al. and JP No. 08-088770 to Iwaki) and the instant invention is that the said prior art **does not teach** exact configuration of dividing means, including a register, a comparator, an algebraic circuit, a clipping circuit, a first and second gates.

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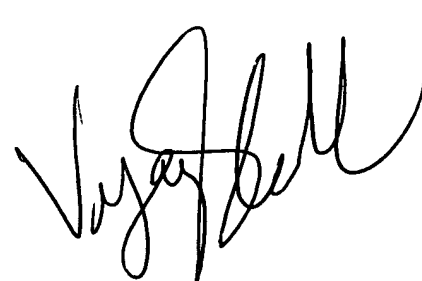
Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

ls

A handwritten signature in black ink, appearing to read 'Vijay Shankar', with a stylized, cursive script.

**VIJAY SHANKAR
PRIMARY EXAMINER**